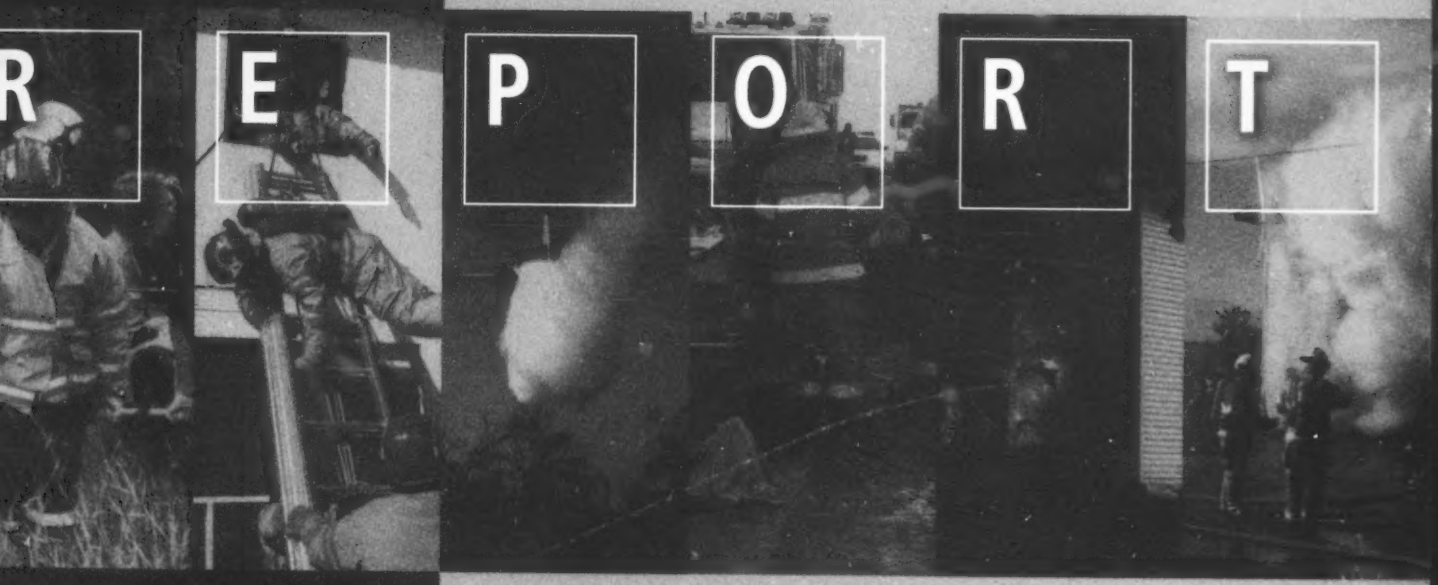
ALBERTA FIRE COMMISSIONER'S OFFICE

2002 | Alberta Fire Commissioner's Statistical

REPORT



Alberta
MUNICIPAL AFFAIRS

Table of Contents

Messages

Minister's Message 2

Fire Commissioner's Message 2

Alberta Fire Casualties

Fire Deaths and Death Rates (Alberta and Canada) 3

Location of Fire Deaths 4

Causes of Fire Related Deaths 4

Fire Deaths and Injuries by Age 5

Fire Casualties by Month, Day of Week and Time of Day 6

Fire Related Deaths by Major Property Classification 7

Fire Injuries by Major Property Classification 8

Major Causes of Fire Injuries 8

Alberta Fire Losses

Fire Losses in Alberta 1993 – 2002 9

Fire Rates and Per Capita Losses 10

Fire Losses Related to Economic Indices 10

Fire Losses by Major Property Classification 11

Fire Losses by Major Sources of Ignition 11

Fire Losses by Major Acts or Omissions 12

Fire Losses by Major Materials First Ignited 12

Initial Detection of Fires 13

Fires by Method of Fire Control and Extinguishment 13

Alberta Home Fire Losses

Home Fires by Type of Home 14

Risk of Fire Loss by Type of Home 14

Home Fires by Major Areas of Fire Origin 14

Major Causes of Home Fires in Alberta 15

Home Fires by Smoke Alarm Operation 16

Glossary 17

Acknowledgement 20

Messages

Minister's Message

The Alberta Fire Commissioner's Office is committed to helping the province's fire services find new and effective ways of delivering services and meeting the new realities of the 21st Century.

This past year, the Fire Services Advisory Committee was established to bring a clear vision to the province's fire services and to provide the leadership to address the challenges facing fire and emergency services. The mandate of the Fire Services Advisory Committee is to develop a unifying framework for the fire service in Alberta, including universal standards for equipment and training, and exploring models for regional cooperation.

The Fire Services Advisory Committee is a valuable part of the work the Fire Commissioner's Office (FCO) does to enhance the delivery of fire and emergency services to communities across the province. The partnership between the FCO, fire departments and industry is vital to the promotion of fire safety and fire prevention, and I encourage you to build on this relationship. Thank you for your commitment to the safety of all Albertans.

Guy Boutilier
Minister, Alberta Municipal Affairs

Fire Commissioner's Message

This is the second year of the Fire Commissioner's Annual Statistical Report published in a reader-friendly format. A total of 5,980 fires were reported to the Fire Commissioner's Office in 2002, resulting in 31 deaths, 307 injuries and $272,878,293 in property losses. It is not clear whether the total number of fires reported for 2002 is due to an actual decline in the number of fires or to under-reporting. Twenty eight per cent of all fires in Alberta occurred in homes. Home fires accounted for 65 per cent of all fire deaths, 56 per cent of all fire injuries and 47 per cent of all property losses from all fires. Home fire safety should be a primary focus in our efforts to reduce the frequency and severity of fires in Alberta.

In its quest for continuous improvement, the Fire Commissioner's Office has implemented a number of programs and services that establish more effective ways of providing assistance and resources to our colleagues in the fire service across Alberta. These new programs and services include the Alberta Emergency Response Inventory System, the Fire Electronic Reporting System, and a revised Municipal Grants Program.

Our website at www.municipalaffairs.gov.ab.ca/fco is regularly updated to keep the fire service and other stakeholders informed of new programs and services. I encourage you to utilize these programs and services, as well as the information provided in this report, and to look upon the Fire Commissioner's Office as a valuable resource in helping you promote fire prevention and fire safety in Alberta.

Pat Graham
Fire Commissioner

Alberta Fire Casualties

Fire Deaths & Death Rates (Alberta & Canada)

Year	Population	Fire Deaths	Deaths Involving Fire**	Total Deaths	Alberta Fire Death Rate***	Canada Fire Death Rate
1993	2,574,890	29	7	36	1.1	1.5
1994	2,601,282	22	3	25	0.8	1.3
1995	2,615,873	31	5	36	1.2	1.4
1996	2,679,435	34	7	41	1.3	1.3
1997	2,744,731	24	13	37	0.9	1.4
1998	2,781,290	12	8	20	0.4	1.1
1999	2,871,271	34	17	51	1.2	1.3
2000	2,932,963	19	8	27	0.6	1.1
2001	2,962,664	27	16	43	0.9	--
2002	3,050,889	16	15	31	0.5	--

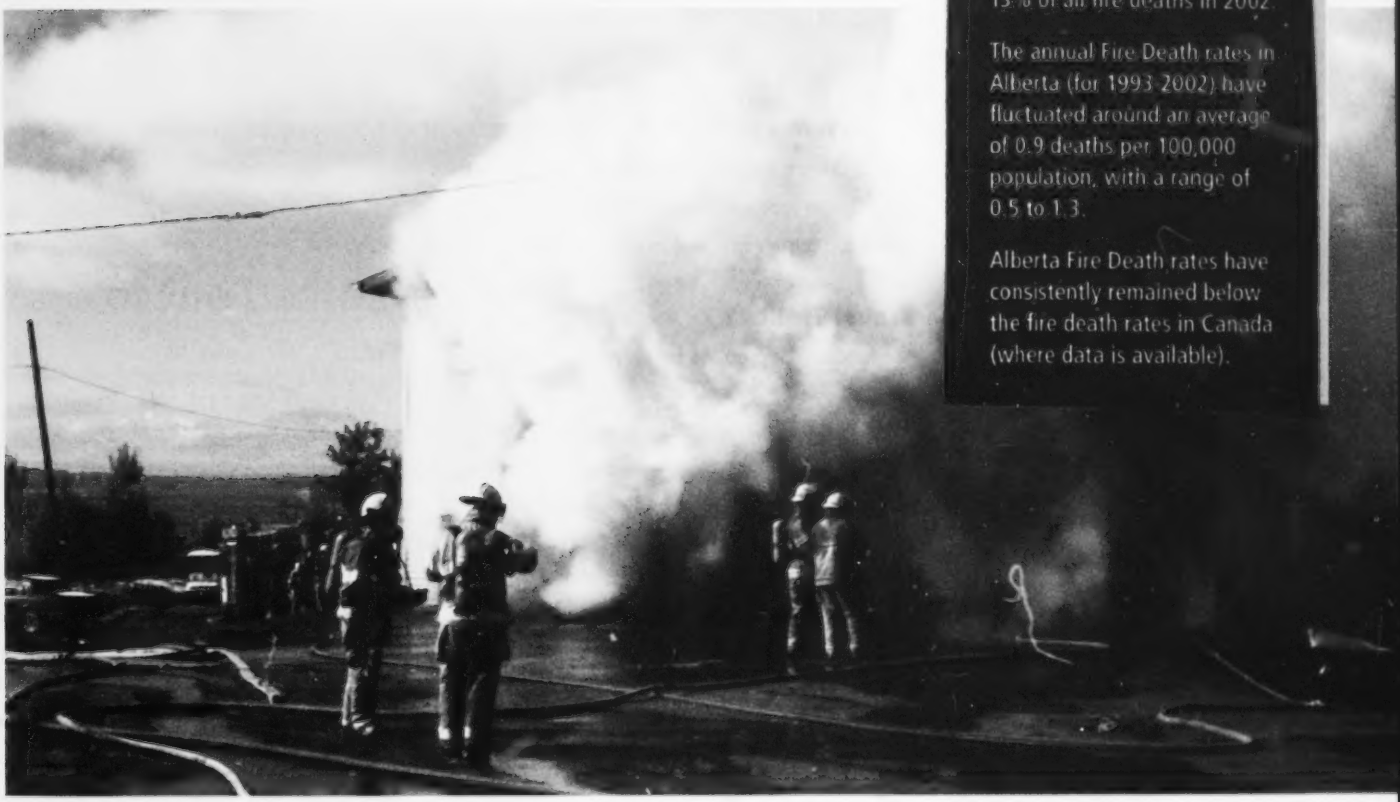
* A Fire Death is death directly due to fire or death within one year of a fire injury.
** A Death Involving Fire is a death from causes other than fire, but occurs at a fire incident.
*** Fire Death Rate = number of Fire Deaths per 100,000 population.

FIRE Facts

Based on known probable causes of death, smoke inhalation accounted for 71%, burns for 13%, physical injuries for 3% and all other causes for 13% of all fire deaths in 2002.

The annual Fire Death rates in Alberta (for 1993-2002) have fluctuated around an average of 0.9 deaths per 100,000 population, with a range of 0.5 to 1.3.

Alberta Fire Death rates have consistently remained below the fire death rates in Canada (where data is available).



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Alberta Fire Death rates have consistently remained below the fire death rates in Canada (where data is available).

Alberta Fire Casualities

Location of Fire Deaths 2002

Alberta Beach	1
Calgary	7
Edmonton	8
High Level	1
Innisfail	2
Kitscoty	1
Lethbridge	1
Medicine Hat	1
Rocky View No. 44, M.D. of	1
St. Albert	1
Stony Plain	3
Sturgeon County	1
Swan Hills	1
Gregoire Lake #176A	1
Stoney #144	1
Total	**31**

Causes of Fire Related Deaths

Fire Deaths (One/Two Family Dwellings, Apartments & Mobile Homes)

Cigarette/smoking material ignited upholstered furniture	5
Candle set fire to nearby paper decoration	1
Clothes dryer fire	1
Electric kettle/coffee maker/urn – automatic control failure – ignition of plastics	1
Unknown	5

Fire Deaths (Home for Aged – with nursing staff)

Smoker's material ignited clothing	1

Fire Deaths (Rooming/Boarding/Lodging House – less than 10 persons)

Cigarette ignited bedding	1

Unclassified Outdoor Property

Arson or set fire ignited grass/brush/leaves	1

Total Fire Deaths **16**

Deaths Involving Fire (One/Two Family Dwellings, Apartments & Mobile Homes)

Arson/set fire ignited upholstered furniture/gasoline/unknown material	4
Natural gas ignition from part failure/leak/break	2
Stove top burner fire, victim with physical/mental disability	1

Travel Trailer

Malfunction of propane powered refrigerator	1

General Business Office

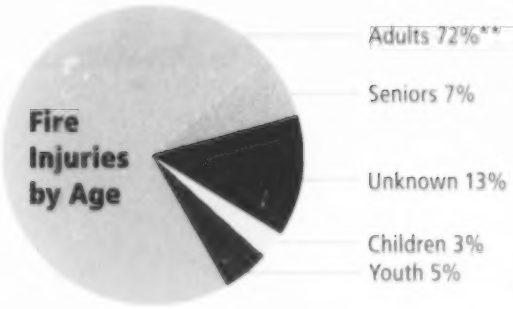
Ignition of gasoline – victim with mental/physical disability	1

Automobiles (includes cars, trucks, vans, single body units)

Motor vehicle crash – ignited gasoline (2)/unknown material (3)	5
Internal combustion engine ignited rubber – victim impaired	1

Total Deaths Involving Fire **15**

Alberta Fire Casualties



Note: definitions of injuries are provided in the glossary

Seniors: 65 years of age and older

Adults: 18-64 years

Youth: 12-17 years

Children: 11 years and under

Risk of Fire Deaths and Injuries

Adults (18-64 years) accounted for the largest proportion of fire deaths and fire injuries. However, the risk of dying or being injured in a fire can be calculated as the fire death rate or fire injury rate — number of casualties in an age group divided by the population of the age group. When fire deaths or injuries were calculated for the five-year period 1998-2002 as rates per 100,000 population using the above formula, it was found that:

- Seniors had the highest risk of dying in fires (fire death rate of 9.7), followed by adults (6.1), children (3.7), and youth (2.2).
- Adults had the highest risk of being injured in fires (fire injury rate of 67) followed by seniors (40), youth (36) and children (18).

Population data source: Statistics Canada 2001 Census, Standard Data Products

* No firefighters died in 2002 fires. The male:female ratio of adult fire deaths was 2.5:1

** Includes 261 civilians and 46 firefighters

FIRE

On average, a fire related death occurred every 12 days in Alberta in 2002.

26% of all fatal casualties were impaired (alcohol/drugs/medication).

7% of all fatal casualties were asleep at the time of the fire.

There were 0.8 fire injuries per day, on average, in Alberta in 2002.

58% of the injured casualties were awake and normal at the time of fire; 10% were asleep and 7% were impaired by alcohol/drugs/medication.

42% of fire injuries occurred when persons entered or remained inside a building for firefighting (31%), for rescue (6%) and to save property (5%).

14% of fire injuries occurred while persons were attempting to escape.

The male to female ratio in adult civilian fire injuries was 3:1.

Alberta Fire Casualities

Location of Fire Deaths 2002

Alberta Beach	1
Calgary	7
Edmonton	8
High Level	1
Innisfail	2
Kitscoty	1
Lethbridge	1
Medicine Hat	1
Rocky View No. 44, M.D. of	1
St. Albert	1
Stony Plain	2
Sturgeon County	1
Swan Hills	1
Gregoire Lake #176A	1
Stoney #144	1
Total	**31**

Fire Deaths (One/Two Family Dwellings, Apartments & Mobile Homes)

Cigarette/smoking material ignited upholstered furniture	5
Candle set fire to nearby paper decoration	1
Clothes dryer fire	1
Electric kettle/coffee maker/urn – automatic control failure – ignition of plastics	1
Unknown	5

Fire Deaths (Home for Aged – with nursing staff)

Smoker's material ignited clothing	1

Fire Deaths (Rooming/Boarding/Lodging House – less than 10 persons)

Cigarette ignited bedding	1

Unclassified Outdoor Property

Arson or set fire ignited grass/brush/leaves	1

Deaths Involving Fire (One/Two Family Dwellings, Apartments & Mobile Homes)

Arson/set fire ignited upholstered furniture/gasoline/unknown material	4
Natural gas ignition from part failure/leak/break	2
Stove top burner fire, victim with physical/mental disability	1

Travel Trailer

Malfunction of propane powered refrigerator	1

General Business Office

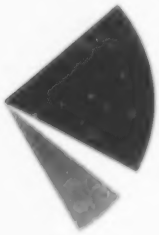
Ignition of gasoline – victim with mental/physical disability	1

Automobiles (includes cars, trucks, vans, single body units)

Motor vehicle crash – ignited gasoline (2)/unknown material (3)	5
Internal combustion engine ignited rubber – victim impaired	1

Alberta Fire Casualties

Fire Deaths by Age



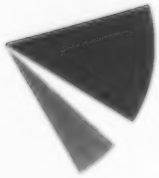
Adults 72%*

Seniors 19%

Children 3%

Youth 6%

Fire Injuries by Age



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Seniors 7%

Unknown 13%

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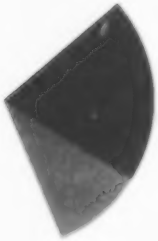
Type of Fire Injuries



Minor 70%

Light 20%

Serious 10%

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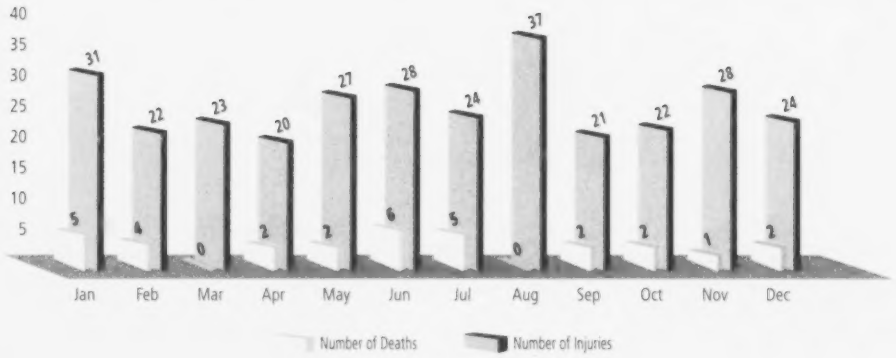
Alberta Fire Casualties

Fire Casualties by Month



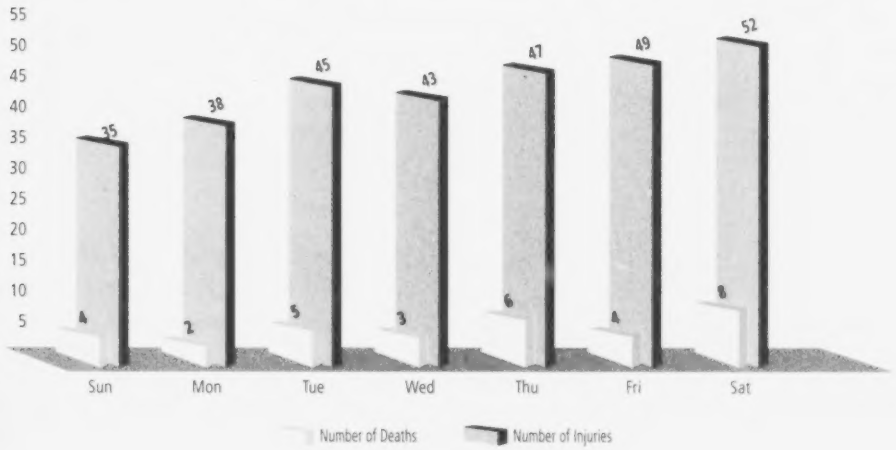
FIRE facts

Most Fire Deaths in 2002 happened in June (19%), followed by January and July (16% each), and most fire injuries occurred in August (12%), followed by January (10%). However, a five year analysis revealed that most Fire Deaths happened in April (15%) followed by February (13%). In a similar analysis, most fire injuries happened in January, April, September and December (9% each).

In 2002, most Fire Deaths (26%) and most Fire Injuries (17%) happened on Saturdays, which is consistent with a five-year analysis (1998- 2002).

The majority of Fire Deaths (52%) and Fire Injuries (40%) occurred between 10:30 p.m. and 6:29 a.m. A five year analysis showed most Fire Deaths happened during 10:30 p.m. and 6:29 a.m., while most Fire Injuries happened during 2:30 p.m. and 10:30 p.m.

Fire Casualties by Day of Week



Fire Casualties by Time of Day

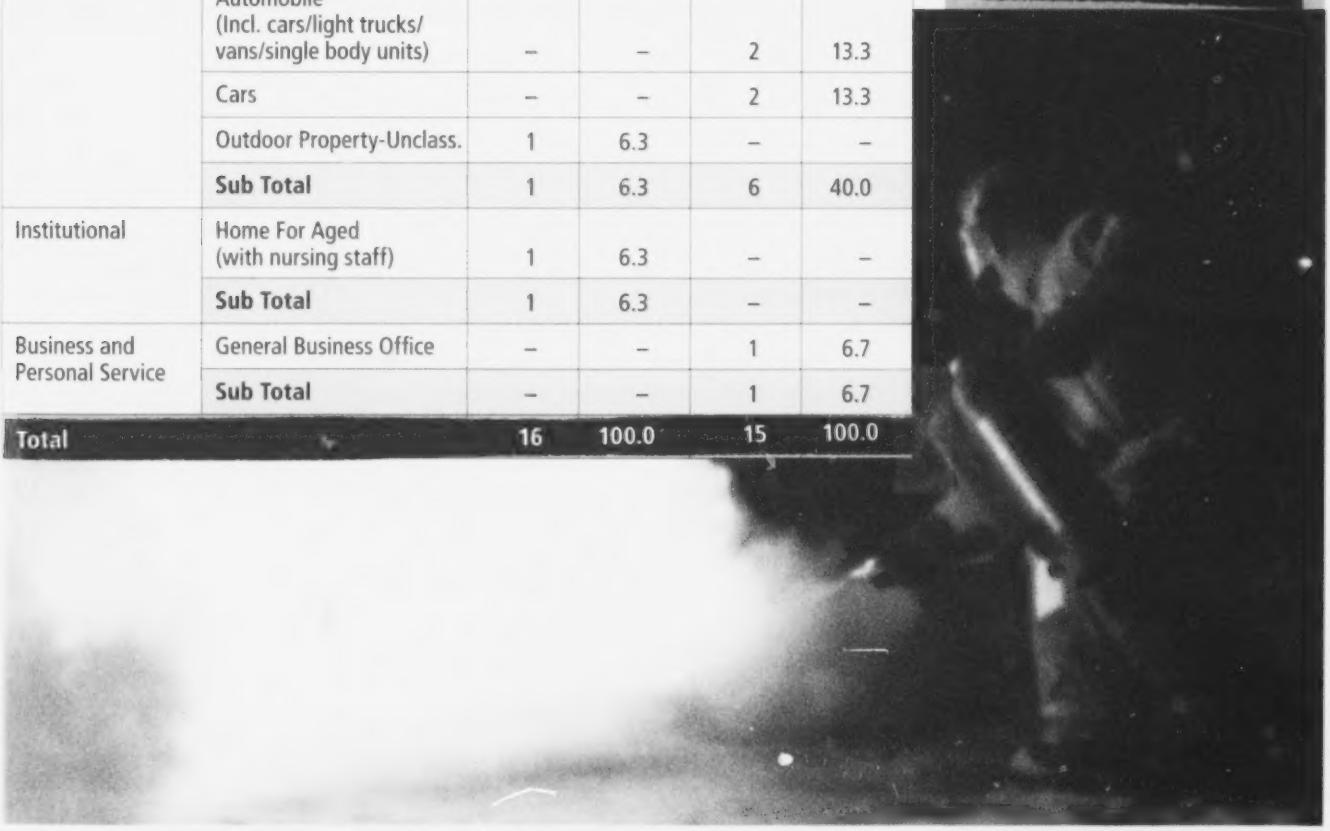
Time Periods	Type of Casualty			
	Fire Deaths		Injuries	
	No	%	No	%
10:30 pm - 6:29 am	16	51.6	122	39.7
2:30 pm - 10:29 pm	10	32.3	104	33.9
6:30 am - 2:29 pm	5	16.1	81	26.4
Total	31	100	307	100

Fire Related Deaths by Major Property Classification

Property Classification		Fire Deaths		Deaths Involving Fire	
		No.	%	No.	%
Residential	One and Two Family Dwellings	8	50.0	4	26.7
	Apartments	3	18.8	3	20.0
	Mobile Home (1 or 2 family units)	2	12.5	–	–
	Rooming, Boarding, Lodging House (less than 10 persons)	1	6.3	–	–
	Travel Trailer	–	–	1	6.7
	Sub Total	14	87.5	8	53.3
Special Property-Transportation Equipment	General Truck (incl. mail truck, trailer truck, tow truck)	–	–	2	13.3
	Automobile (Incl. cars/light trucks/ vans/single body units)	–	–	2	13.3
	Cars	–	–	2	13.3
	Outdoor Property-Unclass.	1	6.3	–	–
	Sub Total	1	6.3	6	40.0
Institutional	Home For Aged (with nursing staff)	1	6.3	–	–
	Sub Total	1	6.3	–	–
Business and Personal Service	General Business Office	–	–	1	6.7
	Sub Total	–	–	1	6.7
Total		16	100.0	15	100.0

FIRE Facts

- 88% of all Fire Deaths and 53% of all Deaths Involving Fire occurred in residential properties.



Alberta Fire Casualities

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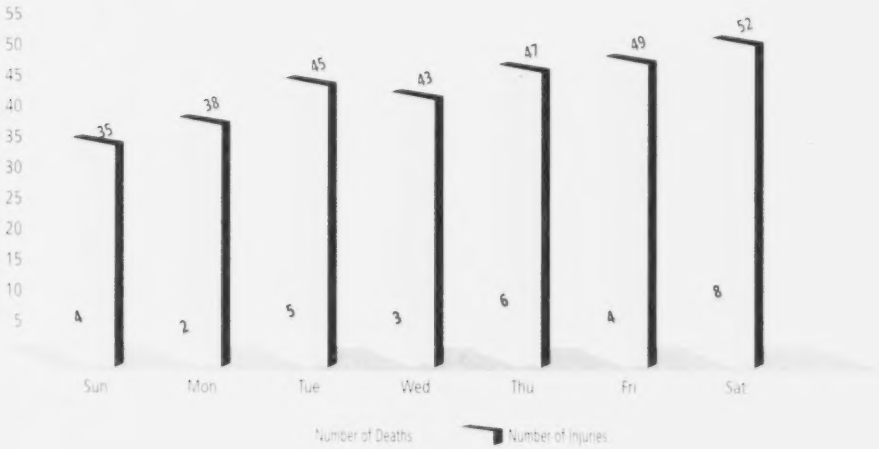

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Alberta Fire Casualties

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		No.	%	No.	%
Residential	One and Two Family Dwellings	8	50.0	4	26.7
	Apartments	3	18.8	3	20.0
	Mobile Home (1 or 2 family units)	2	12.5	–	–
	Rooming, Boarding, Lodging House (less than 10 persons)	1	6.3	–	–
	Travel Trailer	–	–	1	6.7
	Sub Total	14	87.5	8	53.3
Special Property-Transportation Equipment	General Truck (incl. mail truck, trailer truck, tow truck)	–	–	2	13.3
	Automobile (Incl. cars/light trucks/ vans/single body units)	–	–	2	13.3
	Cars	–	–	2	13.3
	Outdoor Property-Unclass.	1	6.3	–	–
	Sub Total	1	6.3	6	40.0
Institutional	Home For Aged (with nursing staff)	1	6.3	–	–
	Sub Total	1	6.3	–	–
Business and Personal Service	General Business Office	–	–	1	6.7
	Sub Total	–	–	1	6.7
Total		**16**	**100.0**	**15**	**100.0**

Fire Facts

- 88% of all Fire Deaths and 53% of all Deaths Involving Fire occurred in residential properties.

Fire Injuries by Major Property Classification

Property Classification	No.	%
Residential		
One and Two Family Dwellings	86	28.0
Apartments	60	19.5
Mobile Homes	25	8.1
Other Residential	33	10.7
Special Property-Transportation Equipment		
Outdoor Property	11	3.4
General/Industrial Truck	10	3.3
Automobile (Incl. cars/light trucks/vans/single body units)	6	2.0
Tractor Trailer	5	1.6
Other	4	1.3
Storage	21	6.8
Assembly	12	3.9
Mercantile	8	2.6
Industrial Manufacturing	8	2.6
Miscellaneous	7	2.3
Business/Personal Services	6	2.0
Institutional	5	1.6
Total	307	100.0

Major Causes of Fire Injuries

Cause	No.	%
Cigarette igniting upholstered furniture, bedding, etc.	40	13.0
Stovetop fire in pan/deep fryer with ignition of cooking oil	36	11.7
Arson/vandalism	23	7.5
Stovetop cooking without ignition of cooking oil and other types of cooking	22	7.2
Electrical wiring, light bulbs, switches, etc. (mostly short circuits/part failure)	24	7.8
Furnace/water heater, mostly ignition of flammable/combustible liquid/gas	17	5.5
Child fireplay with matches, lighters, smoker's material	8	2.6
Candles igniting a variety of combustibles	18	6.0
Fireplaces, vents, chimneys	8	2.6
Space heaters (stationary, portable) ignited nearby combustibles/flammable liquids	10	3.3
Automobile battery, mostly igniting flammable liquids	3	1.0
Appliances: short circuits, part failure, etc.	8	2.6
Cutting/welding	15	5.0
Internal combustion engine, mostly igniting flammable liquids	12	4.0
Other	35	11.4
Unknown	28	9.1
Total	307	100.0

F I R E facts

Most fire injuries occurred in residential properties (66%), particularly in one & two family dwellings (28%), apartments (20%) and mobile homes (8%).

The majority of fire injuries are inflicted by cooking related fires (19%) followed by smoking (13%), arson/vandalism (8%) and furnaces/water heater fires (8%).

Fire losses in Alberta 1993 - 2002

Year	Fires	Deaths	Injuries	$ Losses	Adjusted $ Losses
1993	6,735	36	491	103,320,281	102,095,139
1994	6,897	25	490	110,138,438	107,347,405
1995	6,528	36	425	111,140,466	105,848,062
1996	6,304	41	451	120,556,429	112,354,546
1997	6,671	37	448	141,964,034	129,647,519
1998	6,579	20	429	139,492,065	126,009,092
1999	6,380	51	386	146,519,201	129,205,644
2000	6,457	27	341	158,746,151	135,218,186
2001	7,021	43	392	230,312,039	191,766,893
2002	5,980	31	307	272,878,293	219,708,770
Total	**65,552**	**347**	**4,160**	**1,535,067,397**	**1,359,201,261**
Average	**6,555**	**35**	**416**	**153,506,740**	**135,920,126**

Adjusted losses were calculated from actual losses using the Annual Consumer Price Index (C.P.I.) figures for Alberta obtained from Statistics Canada (1992 CPI = 100).

FIRE FACTS

During the 10-year period 1993-2002, the annual number of fires averaged 6,555. 2002 marks the first year in which the number of fires declined below 6,000. Whether this decline is real or due to sub-standard reporting is not clear.

The numbers of all fire related deaths and fire injuries have fluctuated between 20-51 and 307-491, respectively. Property losses have increased steadily since 1993.

From a total of 5,980 fires during 2002, there were 3,191 structural fires (53%), 1,791 vehicle fires (30%) and 995 outdoor fires (16%).

There were 16 destructive fires per day, on average, in Alberta during 2002. Direct property losses from fires was approximately $747,611 per day and $45,631 per fire.

Alberta Fire Losses

Fire Rates and Per Capita Losses 1993 - 2002

Year	Population	Fires	Fire Rate	$ Losses	$ Loss/Capita
1993	2,574,890	6,735	2.6	103,320,281	40.1
1994	2,601,282	6,897	2.7	110,138,438	42.3
1995	2,615,873	6,528	2.5	111,140,466	42.5
1996	2,679,435	6,304	2.4	120,556,429	45.0
1997	2,744,731	6,671	2.4	141,964,034	51.7
1998	2,781,290	6,579	2.4	139,492,065	50.2
1999	2,871,271	6,380	2.2	146,519,201	51.0
2000	2,932,963	6,457	2.2	158,746,151	54.1
2001	2,962,664	7,021	2.4	230,312,039	77.7
2002	3,050,889	5,980	2.0	272,878,293	89.4

Fire Rate = Number of fires per 1000 population

F I R E

- The fire rate for the province has averaged 2.4 between 1993 and 2002.
- As a percentage of gross domestic product, fire losses have increased by 47% between 2001 and 2002. As a percentage of personal income, fire losses have increased by 13% over the same period.
- April (15%) and July (10%) had the highest average number of fires per month.
- May (32%), October (13%) and December (11%) had the highest average fire losses per month.
- The number of fires were highest on Saturdays (16%) followed closely by Thursdays (16%), while dollar losses were highest on Thursdays (32%) and Saturdays (24%).
- Where the time of fire was known, the majority of fires occurred between the hours of 2 - 7 p.m.

Fire Losses Related to Economic Indices 1993 - 2002

Year	Fire Losses ($)	Gross Domestic Product ($ million)	% of GDP	Personal Income ($ million)	% of Personal Income
1993	103,320,281	81,370	0.13	61,013	0.17
1994	110,138,438	88,116	0.12	62,088	0.18
1995	111,140,466	92,120	0.12	64,528	0.17
1996	120,556,429	98,738	0.12	66,938	0.18
1997	141,964,034	107,048	0.13	72,952	0.19
1998	139,492,065	107,439	0.13	78,279	0.18
1999	146,519,201	117,080	0.13	80,928	0.18
2000	158,746,151	143,721	0.11	88,544	0.18
2001	230,312,039	151,173	0.15	95,194	0.24
2002	272,878,293	149,998	0.18	99,564	0.27

Fire Losses by Major Property Classes

Major Property Classes	Fires	%	$ Losses	% of $ Losses
Assembly	145	2	11,351,391	4.2
Institutional	32	1	14,788,152	5.4
Residential	1,780	30	132,224,308	48.5
Business and Personal Service	38	1	1,127,746	0.4
Mercantile	105	2	30,457,434	11.2
Industrial Manufacturing Properties	104	2	34,937,689	12.8
Storage Properties	386	6	9,023,691	3.3
Special Property-Transportation Equip.	2,802	47	25,853,162	9.5
Miscellaneous Property	588	10	13,114,720	4.8
Total	5,980	100	272,878,293	100.0

Fire Losses by Major Sources of Ignition

Major Sources of Ignition	Fires	%	$ Losses	% of $ Losses
Not Determined	1,246	21	62,574,447	22.9
No Igniting Object	21	0	405,489	0.1
Cooking Equipment	451	8	9,408,346	3.4
Heating Equipment	312	5	31,801,191	11.7
Appliances & Equipment	139	2	3,007,980	1.1
Electrical Distribution Equipment	827	14	17,374,375	6.4
Other Electrical Equipment	129	2	21,349,194	7.8
Smoker's Material & 'Open' Flames	1,437	24	48,513,919	17.8
Exposure	969	16	67,591,229	24.8
Miscellaneous	449	8	10,852,123	4.0
Total	5,980	100	272,878,293	100.0

The largest number of fires occurred in ground transport vehicles (25%), one & two family dwellings (18%) followed by apartments (8%), trash/rubbish/recyclables (7%), outdoor properties (5%) and individual residential parking garages (4%).

The highest dollar losses were in apartments ($74 million or 27%), one & two family dwellings ($48 million or 18%), followed by industrial manufacturing properties ($35 million or 13%).

The most frequent areas of fire origin were in vehicle (31%), outside (22%), structural areas (15%) and function (15%).

Smoker's material and "open" flames (24%), exposure fires (16%) and electrical distribution equipment (16%) were the most common sources of ignition in Alberta fires in 2002.

Sources of ignition were not determined in 21% of the fires in 2002, and these caused an average dollar loss of $50,220.

Where known, the most common fuel or energy associated with the source of ignition were:

- electricity (25%)
- smoker's material (15%)
- exposure fires (16%)
- natural or other fuel gas (5%)
- gasoline (4%)

Alberta Fire Losses

Year	Population	Fires	Fire Rate	$ Losses	$ Loss/Capita
1993	2,574,890	6,735	2.6	103,320,281	40.1
1994	2,601,282	6,897	2.7	110,138,438	42.3
1995	2,615,873	6,528	2.5	111,140,466	42.5
1996	2,679,435	6,304	2.4	120,556,429	45.0
1997	2,744,731	6,671	2.4	141,964,034	51.7
1998	2,781,290	6,579	2.4	139,492,065	50.2
1999	2,871,271	6,380	2.2	146,519,201	51.0
2000	2,932,963	6,457	2.2	158,746,151	54.1
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Alberta Fire Losses

Major Acts or Omissions	Fires	%	$ Losses	% of $ Losses
Not Determined	936	16	39,191,147	14.4
Act or Omission N/A	11	0	203,023	0.1
Arson or Set Fires	1,195	20	29,987,076	11.0
Misuse of Source of Ignition	904	15	89,871,898	32.9
Misuse of Material Ignited	418	7	10,289,755	3.8
Mech., Electr. Failure, Malfunction	1,571	26	38,992,807	14.3
Construction Design, Installation Deficiency	109	2	26,476,280	9.7
Misuse of Equipment	46	1	1,077,629	0.4
Human Failing	625	10	34,285,290	12.6
Vehicle Accident	63	1	994,087	0.4
Miscellaneous	102	2	1,509,301	0.6
Total	**5,980**	**100**	**272,878,293**	**100.0**

Fire Losses by Major Materials First Ignited

Major Materials First Ignited	Fires	%	$ Losses	% of $ Losses
Not Determined	1,396	23	57,679,285	21.1
Building Components	879	15	122,997,159	45.1
Furniture, Furnishings	271	5	8,150,033	3.0
Clothing, Textiles	159	3	3,094,181	1.1
Wood, Paper Products	554	9	31,889,301	11.7
Flammable & Combustible Liquids	858	14	15,061,038	5.5
Flammable Gases	113	2	10,363,840	3.8
Chemicals	219	4	3,515,799	1.3
Agricultural Products	455	8	4,658,567	1.7
Miscellaneous	1,076	18	15,469,090	5.7
Total	**5,980**	**100**	**272,878,293**	**100.0**

Facts

- Incendiary fires accounted for 20% of all fires in Alberta in 2002. This means that approximately one out of five fires was deliberately set.
- The most common act or omission was mechanical, electrical failure or malfunction (26%), a finding that corresponds with the fact that the majority of fires in Alberta are in ground transport vehicles.
- Materials most commonly ignited first were building components (15%) closely followed by flammable and combustible liquids (14%).

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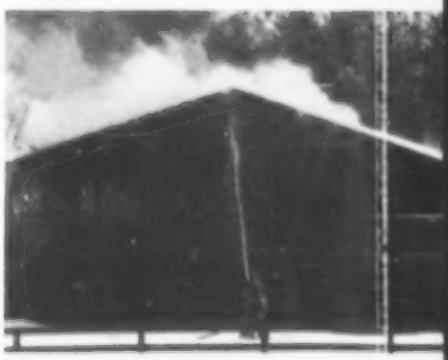
Initial Detection of Fires

Method of Initial Detection	No. of Fires	%
Automatic Sprinkler System	15	0
Automatic System Other Than Sprinkler	13	0
Heat Alarm: Single Station	2	0
Heat Detector: Linked to Alarm System	10	0
Initial Detection-Unclassified	5	0
Initial Detection-Unknown	71	1
No Initial Detection/Burned Out	25	0
Smoke Alarm: Single Station	142	2
Smoke Detector: Linked to Alarm System	61	1
Visual Sighting/Personal Detection	5,636	94
Total	5,980	100



Fires by Method of Fire Control and Extinguishment

Method of Fire Control and Extinguishment	No. of Fires	%
Undetermined	403	6.7
Miscellaneous-Unknown	392	6.6
Hand Fire Extinguisher	548	9.2
Standpipe System	128	2.1
Makeshift Fire Fighting Aid	530	8.9
Fire Department – Water	3,402	56.9
Fire Department – Other Than Water	170	2.8
Sprinkler System	23	0.4
Fixed System Other Than Sprinklers	10	0.2
Burned Out	317	5.3
Miscellaneous-Unclassified	57	1.0
Total	5,980	100.0

F I R E

- Visual sighting or other means of personal detection (94%) was the primary means of initial detection of fires in 2002, while smoke alarms/ detector devices accounted for 3%.
- Where the method of fire control and extinguishment is known, fire departments extinguished 60% of all reported fires.
- Hand fire extinguishers and "makeshift" fire fighting equipment were each used in 9% of fires.

Alberta Home Fire Losses

Home Fires by Type of Home

Type of Home	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
One/Two Family Dwellings	1,052	65	12	60	86	50	48,333,605	38
Apartm., Tenements, Flats	449	28	6	30	60	35	74,441,960	58
Mobile Homes	121	7	2	10	25	15	4,485,661	4
Total	1,622	100	20	100	171	100	127,261,226	100

Risk of Fire Loss by Type of Home

Type of Dwelling	No. of Units*	Fires/1,000 Homes	Fire Deaths/ 100,000 Homes	Fire Injuries/ 100,000 Homes
One/Two Family Dwellings	847,301	1.2	1.4	10.1
Apartments, Tenements, Flats	220,625	2.0	2.7	27.1
Mobile Homes	36,170	3.3	6.0	69.1

* Statistics Canada, 2001 Census.

Fires by Major Areas of Fire Origin

Area of Origin	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Kitchen/Cooking Area	381	23	3	15	51	30	6,682,542	5
Sleeping (under 5 occupants)	175	11	1	5	37	22	6,452,943	5
Exterior Wall	163	10	0	0	1	1	42,522,126	33
Lounge/Living Room	153	9	8	40	19	11	8,761,255	7
Exterior Balcony/ Porch	70	4	0	0	4	2	4,439,060	3
Laundry Area	69	4	1	5	4	2	2,189,092	2
Exterior Roof	64	4	0	0	0	0	14,736,701	12
Heating Equipment Room	57	4	0	0	9	5	1,879,467	1
All other Areas	419	26	1	5	36	21	34,207,528	27
Area of Origin-Unknown	71	4	6	30	8	5	5,390,512	4
Total	1,622	100	20	100	171	100	127,261,226	100

FIRE facts

- Twenty eight per cent of all fires in Alberta occurred in homes. Home fires accounted for 65% of all fire deaths (20 out of 31), 56% of all fire injuries (171 out of 307) and 47% of all property losses ($127m out of $272m) from all fires.
- The relative frequency of fire in a mobile home is 2.75 times that in a one & two family dwelling.
- The risk of dying or being injured in a mobile home fire is four times higher and seven times higher than in a one & two family dwelling.

Major Known Causes of Home Fires

Fire Causes	Fires	% of Fires	Deaths	Injuries	$ Losses
Other Cooking*	206	13	2	17	5,834,633
Heating Equipment Related**	182	11	0	20	8,187,715
Smoking	174	11	5	28	4,745,894
Arson/Set Fire	158	10	4	16	6,883,876
Exposure Fire***	158	10	0	0	56,548,212
Overheated Cooking Oil Fire	134	8	0	25	2,031,222
Electrical Distribution Equipment	108	7	0	4	6,564,821
Candle (accident)	87	5	1	18	3,243,391
Child Fireplay	57	4	0	7	2,285,025
Clothes Dryer	43	3	1	2	770,938
Appliance/Equipment Related	42	3	0	4	995,654
Light/Fluorescent Bulb	28	2	0	0	286,581
Flammable/Comb. Liquid/Gas Ignition	26	2	2	13	1,651,989
Welding/Torch Too Close	13	1	0	2	12,359,651
Other Causes/Unknown	206	13	5	15	14,871,624
Total	1,622	100	20	171	127,261,226

* Cooking related fires except those involving overheated cooking oil.
** Heating equipment includes furnaces, water heaters, fireplaces, wood stoves, space heaters and associated chimneys/vents.
*** An exposure fire is a fire that spreads from one property to an adjacent property.

FIRE facts

- Most home fires started in the kitchen/cooking area (23%).
- The highest percentage of deaths (40%) occurred in the lounge/living room fires.
- The highest percentage of injuries (30%) occurred in kitchens/cooking areas.
- Fires started in sleeping areas accounted for 5% of deaths and 22% of injuries.
- Most kitchen fires started on stove/top burners (71%), causing 82% of injuries in kitchen fires.
- Major sources of ignition in bedrooms were candles (21%) and smoker's material (20%).
- Exposure fires were the major sources of ignition (68%) where fires started on the exterior wall.
- In living rooms, candles accounted for 20% of fires, followed by smoker's material (15%).
- In the exterior balcony/porch area, most fires were caused by smoker's material (27%) and barbecues (18%).
- Nearly 56% of laundry area fires were started in clothes dryers.
- In exterior roofs, the major source of ignition was exposure fires (60%).
- In heating equipment rooms, furnaces and water heaters were the two major sources of ignition (75%).

Home Fires by Smoke Alarm Operation

Smoke Alarm Installation

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Not Installed	712	44	6	30	49	29	53,100,622	42
Installed	910	56	14	70	122	71	74,160,604	58
Total	1,622	100	20	100	171	100	127,261,226	100

Activation of Smoke Alarms

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Activated	299	33	5	36	49	40	10,550,939	14
Not Activated	254	28	3	21	32	26	5,756,586	8
Activation – unknown	357	39	6	43	41	34	57,853,079	78
Total	910	100	14	100	122		74,160,604	100

Alarm Assistance to Occupants

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Occupant evacuation unknown	27	9	0	0	6	12	696,546	7
Not applicable/no occupants	12	4	0	0	1	2	827,731	8
Alarm assisted occupants to evacuate	201	67	5	100	36	73	7,051,115	67
Alarm did not assist occupants to evacuate	59	20	0	0	6	12	1,975,547	19
Total	299	100	5	100	49	100	10,550,939	100

Reasons – Alarms Did Not Assist

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Alarm inaudible	2	3	0	.	0	0	172,687	9
Physical/mental challenge	2	3	0	.	0	0	32,248	2
Unnecessary to evacuate	33	56	0	.	4	67	296,836	15
Under the influence of drugs/alcohol	2	3	0	.	0	0	81,500	4
Unable to evacuate-age related	1	2	0	.	0	0	700	0
Unsuitable location	1	2	0	.	0	0	20,000	1
Other	18	31	0	.	2	33	1,371,576	69
Total	59	100	0	.	6	100	1,975,547	100

Reasons – Alarms Not Activated

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Unsuitable location	7	3	0	0	2	6	51,000	1
Dead battery	20	8	3	100	3	9	416,100	7
No battery	54	21	0	0	12	38	1,318,697	23
AC not connected/ disabled	23	9	0	0	3	9	437,897	8
Mechanical failure	17	7	0	0	2	6	508,192	9
Not enough smoke	89	35	0	0	4	13	1,486,855	26
Unknown	19	7	0	0	2	6	1,091,364	19
Other	25	10	0	0	4	13	446,481	8
Total	254	100	3	100	32	100	5,756,586	100

FIRE facts

- In 2002, 44% of homes where fire occurred did not have smoke alarms installed. Lack of power source was the major reason for no alarm activation (38%).

Act or omission

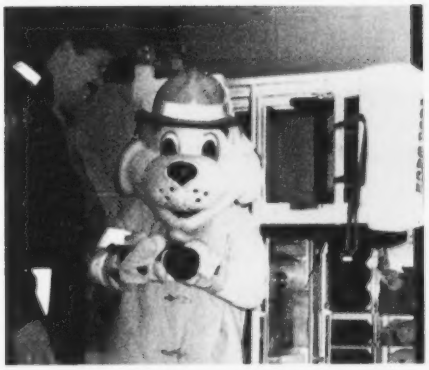
The human element by which someone has done something (an act) or failed to do something (an omission). The act or omission indicates whether the fire was deliberate, neglectful or accidental.

Incendiary or Set Fires:
includes arson, suspected incendiarism, riot, mischief or vandalism.

Misuse of Source of Ignition:
includes disposal of smoker's material, thawing, inadequate control of an open fire, children playing with source of ignition, welding or cutting too close to combustible material or torch too close to combustible material.

Misuse of Material Ignited:
includes fuel spilled accidentally, improper fuelling technique, cleaning or washing parts, improper container, overheated cooking oil, combustible placed too close to heat, and improper storage.

Mechanical and Electrical Failure or Malfunction:
includes part failure, automatic or manual control failure, electrical short circuit and part worn out.



Construction, Design or Installation Deficiency:
includes construction or design deficiency, installation too close to a combustible, other installation deficiency or over fusing.

Misuse of Equipment:
overfuelling, includes any misuse of equipment or tools.

Human Failing:
includes person asleep, temporary loss of judgement, physical disability, panic, influence of alcohol or drugs and ignorance of hazard.

Area of origin

The area of a building or vehicle where the fire started.

Means of Egress:
the area allowing an individual transit or a way of going out. Includes hallway, stairway, escalator, lobby and elevator.

Assembly, Sales Area:
areas where groups of people gather. Includes theatre, arena, lounge, living room, sales or show room, library, museum and sports facility.

Function Area:
the area where a mode of action or activity is undertaken. Includes sleeping area, dining area, bar, washroom, office, laboratory, printing and photographic reproduction area, kitchen, laundry room, operating room, performance area and manufacturing area.

Storage Area:
the area inside a building where items are stored. Includes product storage area, closet, equipment area, records storage area, shipping and receiving area, trash and rubbish area, vehicle garage and agricultural product storage area.

Service Facilities:
conveyance items such as dumbwaiters, service shafts, laundry and garbage chutes, heating and cooking ducts and chimneys or gas vents.

Structural Area:
includes crawl space, balcony, ceiling and floor assembly, wall assembly, exterior wall or exterior roof and awning or canopy.

Vehicle Area:
includes engine area, fuel area, control area, passenger area and cargo area.

Outside Area:
includes open area such as lawn, field or park, court, patio, parking area, outdoor storage area and trash or rubbish area.

Death

A person killed accidentally as a direct result of a fire or a person who dies from a fire injury within one year following the date on which the injury was sustained.

Fire Death:
refers to a person who died as a direct result of a fire, either by smoke inhalation or burns.

Death Involving Fire:
refers to a person who was in a place where fire occurred, but who may have died from a cause other than the fire itself (e.g. a person who dies in an automobile accident where the vehicle subsequently catches fire prior to death, a suicide by burning or asphyxia, an incendiary fire set for the specific reason of killing).

Fuel or energy

The fuel associated with the source of ignition. Includes coal, wood, fuel oil, gasoline, natural gas or other fuel gases, smoker's material, electricity, lightning or exposures.

Injuries

A person accidentally injured as a direct result of a fire (a member of the fire department accidentally injured while in the process of fighting a fire or injured as a result of an accident while en route to or returning from the scene of an actual fire is considered a fire action injury).

Minor Injury:
an injury that does not require hospitalization of over a 24-hour period or absence from work of not more than one full day.

Light Injury:
an injury that required admission to a hospital of over 24 hours up to 48 hours and/or absence from work for a period of two to fifteen days.

Serious Injury:
an injury that required admission to a hospital for a period of more than 48 hours and/or an absence from work for a period exceeding fifteen days.

Material first ignited

The actual material that ignites and creates the fire condition.

Structural Components, Finish Materials:
includes roof covering, wall covering, floor covering, structural component, ceiling covering and insulation.

Furniture, Furnishings:
includes furniture, ironing board, mattress, bedding, drapery and broom, mop or brush.

Clothing, Textiles:
includes clothing, fabric, fur and tarpaulin.

Wood, Paper Products:
includes wood, wood shavings, paper, cardboard and paper stock.

Flammable Liquids:
includes gasoline, fuel oil, flammable liquids, paint, varnish, tar, asphalt, polish and wax.

Flammable Gases:
includes natural gas, propane, anaesthetic gas, acetylene and hydrogen.

Chemicals:
includes starch, flour, cellulose nitrate, plastic, oxidizing material, magnesium and alloys, titanium, natural or synthetic rubber and ammonium nitrate.

Agricultural, Forestry Products:
includes fibres, grains, hay, trees, felled timber, grass, fertilizer and manure.

Miscellaneous:
includes coal, garbage, trash, oily rags and artificial trees.

Property classification

The principal use or occupancy of the building.

Assembly:
property for the gathering of persons for civic, political, travel, religious, social, educational or recreational purposes. Includes theatres, amusement or recreation places, schools, colleges, universities, churches, social or sport clubs, libraries and museums, eating establishments and passenger terminals.

Institutional:
property for medical treatment, or care of persons suffering from illness, disease or infirmity, for the care of infants, convalescents or aged persons and for penal or corrective purposes. Includes prisons, jails, reformatories, homes for the aged, children's hospitals, hospitals and clinics.

Residential:
property in which sleeping accommodation is provided for normal residential purposes. Includes one and two family dwellings, apartments, rooming or boarding houses, hotels, motels, dormitories and mobile homes.

Business and Personal Service:
property for conducting business. Includes offices, personal services such as hairdressing and data processing or storage facilities.

Mercantile:
property used for the display and sale of merchandise. Includes food and beverage sales, textile and clothing sales, furniture and appliance sales, books and specialty sales, recreational and hobby supply sales, repair shops, laundries, vehicle and boat sales and department or variety stores.

Industrial Manufacturing Properties:
property where raw materials are transformed into new products and where the component parts of manufactured products are assembled. Includes chemical, petroleum, paint and plastic manufacturing; wood, furniture, and paper manufacturing; metal product and electrical equipment manufacturing; food processing; beverage, tobacco, soap and margarine manufacturing; textile manufacturing; footwear and wearing apparel manufacturing; and vehicle and related equipment manufacturing.

Storage Properties:
property used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. Includes agricultural product storage; textile, fibre and clothing storage; processed food and beverage storage; flammable liquids, gas and petroleum products storage; wood, furniture, and paper products storage; chemical, paint and plastic storage; metal products, machinery, and electrical appliance storage and vehicle storage.

Special Property and Transportation Equipment:
mainly outdoor property and transport equipment. Includes outdoor property, piers, buildings under construction or demolition, watercraft, rail transport vehicles, ground transport vehicles, aircraft and other special equipment.

Miscellaneous:
includes laboratories, farm facilities, outbuildings, utilities, glass and pottery manufacturing, mining, communications and nucleonics.

Source of ignition

The actual equipment, device or object which brings about ignition.

Cooking Equipment:
includes stove, range, food warming appliance, deep fat fryer, broiler and portable cooking unit.

Heating Equipment:
includes central heating unit, service water heater, space heater, fireplace, chimney, flue pipe and steam or hot water pipe.

Appliances and Equipment:
includes dryer, air conditioning equipment, pressing iron and incinerator.

Smoker's Material and "Open" Flames:
includes cigarettes, pipes, cigars and/or matches, lighters when used in conjunction with smoking. Includes matches and lighters not associated with smoker's material, candles, cutting torches, welding equipment and hot ashes.

Exposure:
includes exposure from an attached or detached structure, lumber yard, open fire, forest, grass and brush.

Miscellaneous:
includes internal combustion engine, heat treatment equipment, industrial oven, tar pot, fireworks, conveyors, commercial and industrial machinery and chemical reactions.

Digital images and photos submitted, to enhance this report, by fire and emergency response departments are gratefully acknowledged.

FIRE COMMISSIONER'S OFFICE

Alberta Municipal Affairs
16th Floor, Commerce Place
10155-102 Street
Edmonton, Alberta T5J 4L4
Phone: (780) 427-8392
Fax: (780) 427-5898

REGIONAL OFFICES

CALGARY
Fire Commissioner's Office
c/o Calgary Fire Department
4124-11 Street S.E.
Calgary, Alberta T2G 3H2
Phone: (403) 287-4246
Fax: (403) 243-9947

LETHBRIDGE
Fire Commissioner's Office
360 Provincial Building
200-5 Avenue, S.
Lethbridge, Alberta T1J 4C7
Phone: (403) 382-4555
Fax: (403) 382-4426

RED DEER
Fire Commissioner's Office
207 Provincial Building
4920-51 Street
Red Deer, Alberta T4N 6K8
Phone: (403) 340-5157
Fax: (403) 340-5210

PEACE RIVER
Fire Commissioner's Office
Bag 900, Box 24
9621-96 Avenue
Peace River, Alberta T8S 1T4
Phone: (780) 624-6163
Fax: (780) 624-6552

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